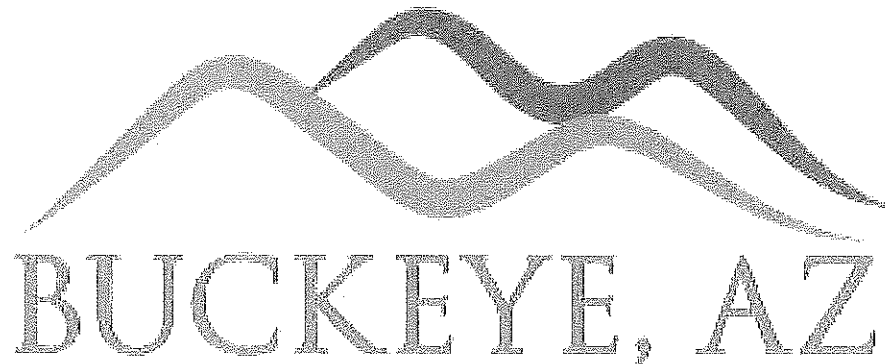


**TECHNICAL SPECIFICATIONS
FOR
SUNDANCE PARCEL 48 AND 49A CHANNEL IMPROVEMENTS**

**CITY OF BUCKEYE
CONTRACT NO. 2014-07**



March 2015

TABLE OF CONTENTS

PART 100 – GENERAL CONDITIONS..... 4

PART 200 – EARTHWORK..... 21

PART 700 – MATERIALS..... 22

For the purpose of the Technical Specifications, both MAG standards and ADOT standards noted and revised shall be used for the City’s project; however where a direct conflict exists between the Technical Specifications and the City’s General Conditions, the more stringent will prevail.

PROFESSIONAL ENGINEER SEALS

This book of specifications and related contract documents represents the efforts of the following firms:

(1) Kimley-Horn and Associates, Inc. (KHA)

A representative of various disciplines have affixed his/her professional seal below, which attests that those portions of these specifications, which relate to their respective discipline area, were prepared under his/her direction.

Kimley-Horn and Associates, Inc. (KHA)

PART 100 – GENERAL CONDITIONS

The City of Buckeye Engineering and Design Standards can be accessed at <http://www.buckeyeaz.gov/developers/engineering/> are part of these contract documents.

The "Uniform Standard Specifications for Public Works Construction" which are sponsored and distributed by the Maricopa Association of Governments (MAG), and which are hereinafter referred to as the "MAG Standard Specifications," are hereby adopted as part of these contract documents. Copies of these documents, with revisions, may be obtained at the Maricopa Association of Governments, 302 North 1st Avenue, Phoenix AZ 85003.

The Maricopa County Department of Transportation Supplement to the MAG Standard Specifications is also adopted as part of these contract documents. Copies of these documents may be accessed at: http://www.mcdot.maricopa.gov/technical/engineering-manuals/2015_Suppl.pdf.

SECTION 101 ABBREVIATIONS AND DEFINITIONS:

The following additions are made to definitions in Section 101.2 of the MAG Standard Specifications:

Contracting Agency:	City of Buckeye, Arizona
Owner:	City of Buckeye, Arizona
Design Landscape Architect:	Kimley-Horn
Survey:	Survey Innovation Group, Inc.
Engineer:	To be appointed
Project Manager:	To be appointed
Owner's Representative:	To be appointed
Inspector:	To be appointed

The Engineer, Project Manager and/or an Owner's Representative may all be a same person and will be appointed by City to represent the City of Buckeye.

SECTION 104 SCOPE OF WORK:

104.1 Work to be done:

Section 104.1 of the MAG Standard Specifications is modified to add:

The Sundance Channel Improvements are located in the City of Buckeye in Maricopa County. The project includes installing channel protection for an existing residential offsite drainage channel. The channel protection includes placing riprap with filter fabric on the side slopes and outfall of the existing channel.

The above items of work along with the construction requirements are adequately described and defined in the Uniform Standard Specifications and Details for Public Works Construction sponsored and distributed by the Maricopa Association of Governments (MAG) together with the City of Buckeye and MCDOT supplements thereto, latest revisions, ADOT Standard Specifications for Road and Bridge Construction, latest revision, or within these technical specifications.

The information written into these project technical specifications will:

1. Describe any special or unusual conditions
2. Explain details of the work not covered in the MAG Specifications and Details
3. Relate certain work to specific bid items or payment quantities
4. Contain the specifications and/or drawings and specifications of this project.

104.1.5 Pre-construction video

Contractor shall provide a copy of a pre-construction video to the City of Buckeye prior to commencing work and retain a copy for their records; at a minimum, this video shall show the existing condition of the roads adjacent to the project, condition of landscaping and fences in close proximity of the work, and the like. There will be no measurement or payment for this video.

104.2.6 Value Engineering Proposals by the Contractor

Proposals may be submitted to the Engineer for modifying the plans, specifications, or other requirements of the contract for the sole purpose of reducing the total costs of construction without impairing in any manner the essential functions or characteristics of the project, including service life, economy of operations, ease of maintenance, benefits to traveling public, desired appearance or design and safety standards.

After execution of the contract, an initiative may be recommended by the Contractor. The initiative must be identified as a Value Engineering Proposal (VEP), and may include modifications to the plans or specifications, construction phasing procedures, or other contract requirements.

Any cost savings generated to the contract as a result of the VEP offered by the Contractor and approved by the City will be shared equally between the Contractor and the City.

Bid prices are not to be based on the anticipated approval of a VEP. Additional costs should be included in the VEP for the engineer's evaluation and/or re-design that may be required for the VEP. If a VEP is rejected, the contract shall be completed in accordance with the original terms of the contract or as otherwise modified.

Any decision whether to approve or accept a VEP shall be within the sole discretion of the City. The City will bear no liability for any delay in considering a VEP, the refusal to accept or approve such a proposal, or any other matter connected with a VEP.

GENERAL INFORMATION

The following items, though not a comprehensive list, are non-payment items being considered incidental to the project, the costs of which are to be included in project overhead or within other specific bid items:

Clearing and Grubbing
Dust control
Temporary construction fencing
Locating (or potholing) of new or existing utilities
SWPPP Preparation and Document Maintenance
SWPPP BMP's, upkeep and maintenance
Contractor's site office or yard
Roadway sweeping
Haul routes
Any and all permits - preparation costs and permit fees
Protective fencing or plating for open trenches
As-builts

CONTRACT STANDARD SPECIFICATIONS AND DRAWINGS

The following Standard Specifications and Standard Drawings referenced in the project contract documents are required for construction of this project:

- City of Buckeye Engineering Design Standard Specifications and Details, latest adopted edition
- Maricopa Association of Governments (MAG) Uniform Standard Specifications for Public Works Construction, latest edition
- Maricopa Association of Governments Uniform Standard Details for Public Works Construction, latest edition.
- Maricopa County, Arizona, Drainage Design Manual for Maricopa County, Volume III, Erosion Control. August 15, 2013

CONSTRUCTION RESTRICTIONS

General: The Contractor shall perform construction activities between normal work hours; 7 a.m. to 5 p.m., Monday through Friday excluding national holidays and holiday weekends, except as approved by the City.

Night work may be established by the Contractor as regular procedure with written permission of the City of Buckeye, and will be subject to the City's Noise Ordinance. Such permission may be revoked at any time by the City of Buckeye.

Work outside these hours is permissible provided a construction schedule has been prepared, submitted to and found acceptable to the City of Buckeye. The schedule shall identify the details of the work to be performed, including the location and duration of planned activities. Submittals shall be made a minimum of seven days prior to the planned work to allow sufficient time for the City to review the request and schedule any necessary inspections and testing services that occur outside the normal and excepted working hours indicated above.

TRAFFIC CONTROL

Traffic control shall be provided and maintained in accordance with the latest edition of the Manual of Uniform Traffic Control Devices and the City of Phoenix Barricading Manual, Maricopa County Department of Transportation, MAG Uniform Standard Detail 401, and City requirements. The Contractor is required to submit a Traffic Control Plan and Barricade Plan to the City for approval where the construction of the new improvements are adjacent to or connecting to any existing roadway or pedestrian facilities. The Traffic Control Plan and Barricade Plan shall be approved before a permit for the work will be issued. The Contractor shall install approved barricading and traffic control, as approved by the City, before work can take place. All overnight barricades shall be lit and functioning.

SAFETY FENCING FOR TRENCHES AND EXCAVATIONS

The Contractor shall provide safety construction fencing around all open trenches and excavations during all non-working hours.

The Contractor shall provide for the safety and welfare of the general public by adequately fencing all excavations and trenches that are permitted by the Engineer to remain open when construction is not in progress.

Fencing shall be securely anchored to approved steel posts located six (6) feet on center, having a minimum height of six (6) feet, and shall consist of wire mesh fabric of sufficient weight and rigidity to adequately span a maximum supporting post separation of six (6) feet.

The fencing, when installed about the periphery of excavations and trenches, shall form an effective barrier against intrusion by the general public into areas of construction. The Contractor, at all times when construction is not in progress, shall be responsible for maintaining the fencing in good repair, and upon notification by the Engineer, shall take immediate action to rectify any deficiency. Prior to the start of any excavation or trenching required for the execution of the proposed work, the contractor shall submit to the Engineer for approval, detailed plans showing types of materials and methods of fabrication for the protective fencing.

There will be no separate measurement or payment for furnishing, installing, or maintaining protective fencing. The cost shall be considered incidental to the cost of the work.

SOILS INFORMATION

No geotechnical report was prepared for this project.

GENERAL REQUIREMENTS

Clearing and Grubbing

No separate bid item has been established for clearing and grubbing, inclusive of the channel protection work. The cost shall be considered as included in the price of contract items. The work shall be performed in accordance to MAG Section 201.

Earthwork

There is no separate pay item for earthwork. All earthwork quantities are being paid under ITEM 220.01000 – RIPRAP CONSTRUCTION. No additional measurement or payment shall be made for any earthwork item including drainage excavation, fill construction and importing borrow.

Filter Fabric

No separate bid item has been established for installing geotextile filter fabric prior to placing of riprap protection. The cost shall be considered as included in the price of the riprap construction contract items. The work shall be performed in accordance to MAG Section 220.

Temporary Drainage

The contractor shall be responsible for maintaining the temporary drainage facilities for the different phases of construction. No measurement or direct payment will be made for maintaining temporary drainage and other measures as required to prevent ponding and embankment scour, the cost being considered as included in the price of contract items.

Utilities

The contractor shall be responsible for determining exact location of utilities if present.

Additional Requirements

All other materials removed and not designated to be salvaged or incorporated into the work shall become the property of the contractor.

All new construction shall be completed within the drainage easement areas shown on the project plans.

SECTION 105 CONTROL OF WORK:

105.2 Plans and Shop Drawings:

Section 105.2 of the MAG Standard Specifications is modified to add:

All materials and equipment not provided by City of Buckeye shall be approved by the Engineer prior to purchasing and installation. Any work in which materials or equipment not previously approved by the Engineer are used shall be performed at the Contractor's risk and may be considered as unauthorized and unacceptable and are not subject to the payment provisions of the contract. Such materials or equipment may be subject to removal at the discretion of the Engineer.

Before ordering or installing any material or equipment, the Contractor shall submit four (4) copies of each proposed material and/or equipment list, including shop drawings to the City for approval by the Engineer. To be acceptable, the list shall be complete and contain all items supplied on the project by the Contractor, including pre-approved items. The City of Buckeye reserves the right to reject an incomplete or unclear material submittal. All items on the list shall be identified by manufacturer's part number, model, specification or other pertinent catalogue information. The materials from any catalog cuts shall be clearly indicated by the Contractor. One (1) copy will be returned to the Contractor for further action.

All equipment or material specified or shown on plans, or other drawings, by brand name, part number, or model number is intended to be descriptive of the type and quality of material or equipment desired. Another equal brand name, part number, or model number may be substituted so long as it is in accordance with these specifications and is equal in form, fit, function, performance, reliability, and is approved by the Engineer.

Materials

The Contractor shall furnish to the City of Buckeye's Engineer product data, material certificates of compliance, mix designs and shop drawings in sufficient detail to show complete compliance with all specified requirements, including but not necessarily limited to the following:

- Rock riprap gradation
- Filter fabric

Product data shall include information such as the manufacture's printed recommendations, compliance with recognized trade association standards, application of testing agency labels and seals, product dimensioning, and notation of coordination requirements.

The Certificates shall be prepared by the Manufacturer or testing agency thereof and should include technical specifications and compliance with industry trade association and testing agency standards.

Distribution and Review

The Contractor shall anticipate and schedule for a two week review period by the City of Buckeye and/or its designee during which time the City will approve, disapprove, or request modifications. The latter two will require re-submittal of the material and a subsequent additional review period. This process shall be repeated until all submitted materials have been approved.

Shop drawings shall be on sheets in standard size increments between 8 ½" X 11" and 24" x 36". All drawings shall indicate the name of the job, the City's job number, date, names of the Contractor, Subcontractor and Preparer, and the date of approval by the Contractor. All other data, certificates or mix design reports shall be presented on 8 ½"×11" formats, or as provided by the Supplier/Manufacturer.

105.6 Cooperation with Utilities

Section 105.6 of the MAG Standard Specifications is modified to add:

The Contractor shall notify the affected utility companies and Blue Stake (263-1100) prior to the start of construction and shall ascertain the approximate locations of the various underground utilities either shown on the plans and/or as may be brought to his attention by the utility companies. The exact locations of underground utilities shall be determined by "potholing" by the Contractor prior to any trenching or excavation operations.

No utility conflicts are anticipated, however, It shall be the Contractor's responsibility to notify Blue Stake at 602-263-1100 (1-800-STAKE-IT), field verify utility locations if existing and to coordinate in a timely manner with the pertinent utility companies so that any obstructing utility installation may be adjusted without delay to the Contractor's project schedule.

The Contractor shall be responsible for potholing all utility conflicts in a timely manner; the cost for potholing new or existing utilities shall be included in the cost for other items of work.

105.7 Cooperation between Contractors

Section 105.7 of the MAG Standard Specifications is modified to add:

The Contractor is hereby notified of the following proposed projects that may be on-going during the project improvements. There will be no separate measurement or payment for the needed coordination, providing needed access, and sequencing of construction that may be needed for these projects.

Dean Road Landscape Improvements

This project includes constructing landscape improvements along the east side of the adjacent Dean Road. The improvements include constructing a new concrete sidewalk with additional landscaping plantings. The project is currently under design development and no construction schedule is available as of writing of these requirements.

The Contractor is hereby notified of this project and shall coordinate work with this project and shall make no claim for any delays that may be associated with the City's Dean Road Landscape Improvements project.

105.8 Construction Stakes, Lines and Grades

MAG Section 105.8, Construction Stakes, Lines and Grades are deleted and replaced with the following:

The Contractor shall furnish all materials, personnel, and equipment necessary to perform all surveying, staking, laying out of control lines and verifications of the accuracy of all existing control points which are delineated in the Contract Documents. The work shall be done under the direction of a Registered Land Surveyor licensed to practice in the State of Arizona.

Staking Outline: Prior to beginning any survey operations, the Contractor shall furnish to the City of Buckeye Project Manager, for approval, a written outline detailing the method of staking, interval of stakes, marking of stakes, grade control for various courses of materials, referencing, structure control, and any other procedures and controls necessary for survey completion. A part of this outline shall also be a schedule which will show the sequencing of the survey and layout work, throughout the course of the contract, listing a percentage of completion for each month.

Field Books: The Contractor shall furnish field books to be used for recording survey data and field notes. These books shall be available for inspection by the City at any time and shall become the property of the City upon completion of the work.

Survey Control Verification: The Contractor shall be responsible to stake construction elevations tied to the prime bench mark.

Coordinate and elevation information for other monuments and benchmarks has been provided in the project plans. If a discrepancy is discovered with respect to project

elevations, the project prime benchmark will override all other monuments and/or benchmarks.

- a. Control Points (horizontal and vertical) – The existence and location of all survey monuments, bench marks and control points shall be verified prior to demolition or construction activity. Immediately notify the City of Buckeye Project Manager when location discrepancies greater than two-hundredths (0.02) foot horizontal or one-hundredth (0.01) foot vertical are found.
- b. Control Lines – Construction control lines with grade breaks, transition points, horizontal and vertical curves, etc., shall be established and referenced prior to construction.
- c. Temporary Bench Marks – Temporary bench marks shall be established and referenced at this time.

Pre-Construction Location Survey: All existing features which are located prior to construction shall be referenced to survey monuments along control lines by stationing in accordance with the construction documents and by offset distance from the control lines. All features shall be relocatable after construction. Distances measured shall be within one-hundredth (0.01) foot.

- a. Survey monuments - All survey monuments that lie within the construction area that may be disturbed shall be referenced to a specific point on at least four (4) stable objects by distance measurement. Reference objects shall be located no greater than three-hundred (300) feet from the survey monument being referenced.
- b. Water and Sewer line appurtenances - Water and sewer line surface appurtenances such as manholes, valves and cleanouts that lie within the construction area shall be located and noted on the Contractor's approved construction documents prior to any demolition or excavation.
- c. Match Points and Removals - Verify the location (horizontal and vertical) of existing facilities to which the project connects. Immediately notify the City of Buckeye Project manager when location discrepancies of connecting facilities greater than one-tenth (0.10) foot horizontal or two-hundredths (0.02) foot vertical are found.

Construction Stakes: The Contractor shall set construction stakes and marks establishing lines and grades for road work, curbs, gutters, path, structures, buildings, centerlines for utilities and necessary appurtenances and other work as indicated in the Contract Documents and shall be responsible for their conformance with the plans and specifications.

The stakes shall be established in accordance with the following guidelines which represent the minimum standard and the Contractor shall provide additional stakes and controls necessary to perform the work. The Contractor shall be held responsible for the preservation of all stakes and marks and will replace, at no additional cost to the City, any construction stakes or marks which have been carelessly or willfully destroyed by any party.

Riprap protection: The Contractor shall delineate the procedures and controls to be utilized in the Staking Outline.

Construction staking costs are incidental and included with the riprap channel construction.

105.10 Inspection of Work

Section 105.10, add the following:

The Contractor shall hire an independent third party Material Testing firm to perform Quality Control testing for the project. The City reserves the right to do Quality Assurance testing.

All material testing for the project shall be paid under bid item 112.01000 Contractor Quality Control.

MAG SECTION 107 LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

107.1 Laws to be Observed

Section 107.1 of the MAG Standard Specifications is modified to add the following:

The City of Buckeye will endeavor to ensure in every way possible that small, minority and woman-owned business enterprises shall have every opportunity to participate in providing professional services, purchased goods and contractual services to the City of Buckeye without fear of discrimination based on race, religion, sex, age, disability or national origin. A Small Business, Minority and Woman-Owned Business Enterprise goal has NOT been established for this contract, however participation is encouraged.

107.2 Permits

Section 107.2 has been revised to read:

It is Contractor's responsibility to obtain all permits and licenses, pay all fees, charges, and taxes and prepare all required notices for the lawful execution of the work. Permits for earth moving may be obtained from Air Pollution Control, Maricopa County Department of Environmental Management, 2406 South 24th Street, Suite E-214, Phoenix, Arizona 85034, Telephone Number (602) 506-6700. A copy of the earthmoving permit and dust control plan shall be submitted to the Engineer prior to commencement of any earthmoving activities.

107.2.1 AZPDES (NPDES) Construction General Permit Requirements

Unless otherwise directed by the City, the Contractor shall be responsible for compliance with the Arizona Pollutant Discharge Elimination System (AZPDES)

requirements administered by the Arizona Department of Environmental Quality (ADEQ).

107.2.1.1 Regulation Compliance:

The Contractor shall take all necessary measures to assure compliance of employees and subcontractors with the AZPDES Construction General Permit for Arizona as well as all other applicable federal, state and local laws, ordinances, statutes, rules and regulations pertaining to storm water discharge and air, ground water and surface water quality. As the permittee, the Contractor is responsible for preparing, in a manner acceptable to the ADEQ and the EPA, all documents required by regulation, which shall include but not necessarily be limited to the following:

107.2.1.1.1 Notice of Intent (NOI).

107.2.1.1.2 Storm water Pollution Prevention Plan (SWPPP).

107.2.1.1.3 Notice of Termination (NOT).

107.2.1.2 NOI Submittal:

Preliminary copies of the NOI and the SWPPP shall be submitted to the City during the pre-construction conference and shall be subject to review by the City prior to implementation.

The Contractor shall ensure the completed and duly signed NOI form(s) are submitted in a timely manner to prevent a delay to project construction.

The AZPDES form shall be submitted to ADEQ's Phoenix office by certified mail or hand delivered to the address below:

Storm Water Program-Water Permits Section/NOI
Arizona Department of Environmental Quality
1110 West Washington Street, 5415B-3
Phoenix, AZ 85007

The form may also be faxed to ADEQ at 602-771-4674 or submitted via "smart NOI" accessible from the ADEQ's website:

<http://www.ev.state.az.us/environ/water/permits/stormwater.html>

If the construction is near impaired or unique water, the SWPPP shall be submitted with the NOI. Permit activation may require 32 business days or more for construction sites near impaired or unique waters, as well as for construction sites with special concerns,

therefore, documentation is to be submitted to ADEQ as early as possible (preferably at least 32 business days prior to the desired start of construction).

All local municipalities within the construction project limits shall be notified, as applicable.

A copy of all submitted NOI forms shall be posted at the construction site. An additional copy shall be submitted to the Construction Manager.

107.2.1.3 Time Extension:

Failure by the Contractor or subcontractor of any tier to submit a NOI within the mandated time frame shall result in delay of the construction start date and no claims for extension of time will be granted for such a delay.

107.2.1.4 SWPPP:

The Contractor shall develop, implement, update and revise the SWPPP, as necessary, to assure compliance with permit requirements. The SWPPP shall be retained on the project site at all times during construction. Copies of forms and guidance for preparing the SWPPP are available in the "Drainage Design Manual for Maricopa County, Volume III Erosion Control". The manual is available at the Flood Control District, 2801 West Durango Street, Phoenix, Arizona 85009. In addition, a "Construction SWPPP Checklist" can be obtained from ADEQ for assisting in the preparation of the SWPPP.

107.2.1.5 Inspections:

The Contractor shall perform inspections of all storm water pollution control devices on the project once every fourteen (14) days and within twenty-four (24) hours of each 0.5-inch or greater storm event, as required under the provisions of the AZPDES Construction General Permit for Arizona. The Contractor shall prepare reports on such inspections and shall retain the reports for a period of at least three (3) years following the completion of the project. Inspection reports shall be submitted monthly to the City along with progress payment requests. Additionally, the Contractor shall maintain all storm water pollution control devices on the project in proper working order, which shall include cleaning and/or repair during the duration of the project and until the site is in compliance with the AZPDES permit for final stabilization and the NOT is submitted.

107.2.1.6 NOT Submittal:

Upon project completion, acceptance demobilization, and final stabilization, the Contractor shall submit to the permitting agency a completed, duly executed Notice of Termination form for each NOI issued, with a copy to appropriate municipalities, thereby terminating all AZPDES permit coverage for the project. The Contractor shall then provide to the City copies of the SWPPP, inspection information and all other documents prepared and maintained by the Contractor in compliance with the AZPDES

Construction General Permit. The Contractor shall retain the originals of such documents for a period of at least three (3) years following the completion of the project and make such documents available for inspection by representatives of the Environmental Protection Agency, the Arizona Department of Environmental Quality, the City, and any municipality having jurisdiction, upon request.

107.2.1.7 Fines and Penalties:

Fines and penalties imposed by the ADEQ or the EPA for Contractor's failure to comply with any or all of the permit requirements shall be borne by the Contractor.

107.2.1.8 Payment:

The lump sum price for AZPDES will be paid under Item 107.02, and shall include all material, labor, and costs relating to the NOI, NOT, and the SWPPP. This includes but is not limited to the preparation, installation, maintenance, and removal of temporary

SWPPP elements, assuring proper operation of the pollution control devices installed, and all maintenance, cleaning, and disposal costs associated with clean-up and repair following storm events, runoff or releases on the project. The lump sum price for AZPDES shall be inclusive of all related costs, and no additional claims shall be made by the Contractor under any other specification provision, including changed conditions.

The Contractor shall be compensated for this item at a rate of 25 percent of the total contract price paid with the first progress payment, the remaining 75 percent will be prorated over the entire length of the project.

109.10 Mobilization

Mobilization:

The City of Buckeye will compensate Contractor for one-time, round trip mobilization/demobilization of Contractor's personnel, equipment, supplies and incidentals, establishment of offices, buildings and other facilities required for the performance of the work on the project, as well as preparatory work and operations prior to the commencement of the work on the project site.

Measurement:

Measurement of all work completed under the contract will be measured by the Engineer according to United States standard measures. The methods of measurement and computation to be used in determination of quantities of materials furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice. Mobilization/demobilization will be measured for payment by the lump sum as a single complete unit of work.

Payment:

Payment for pay items in the proposal will be as indicated in the applicable standard specification or in the special provisions.

Payment for mobilization/demobilization, measured as provided above, will be made at the contract lump sum price. Payment shall be made in equal one-third portions. The first payment will be paid with Contractor's initial billing. The second payment will be made when the total payments to Contractor for the bid items, exclusive of payments for mobilization/demobilization, equals one-half of the total bid by Contractor, exclusive of mobilization/demobilization. The remaining one-third will be paid as part of the second to last progress payment. Final payment due Contractor will be for retention.

When other contract items are adjusted as provided in Section 109, and if the costs applicable to such items of work include mobilization costs, such mobilization costs will be considered as recovered by Contractor in the lump sum price paid for mobilization, and will be excluded from consideration in determining compensation under Section 109.

If the Contractor performs a second mobilization/demobilization of personnel, material and/or equipment at the Engineer's express written request, the City will compensate the Contractor for such expenses at the Contractor's actual costs. The Contractor shall provide all documentation for these costs at the request of the Engineer.

Add the following new MAG Section:

SECTION 112 CONTRACTOR QUALITY CONTROL

112.1 Work Specified Herein:

This Section outlines requirements covering testing laboratory services and inspection required during the course of construction of the Project. Testing, when required, will be in accordance with pertinent codes and regulations and with selected standards of the American Society for Testing and Materials.

The Contractor shall select a pre-qualified City testing laboratory firm and will pay for material testing services of the testing laboratory as further described in this Section.

Cooperate with the selected testing laboratory and all others responsible for testing and inspecting the Work.

Provide other testing and inspecting as specified to be furnished by the Contractor in this Section and/or elsewhere in these Specifications.

Conform to MAG Section 106, "Control of Materials."

112.2 Testing:

The contractor shall pay for initial testing services required by the City. Additional tests, required due to failure of the initial compliance testing, shall be paid for by the Contractor.

Inspections and tests required by codes or ordinances, or by a plan approval authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.

Inspecting and testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

Representatives of the testing laboratory shall have access to the Work at all times. Provide facilities for such access in order that the laboratory may properly perform its function.

Specimens and samples for testing, unless otherwise provided in the Contract Documents, will be taken by the testing personnel. Sampling equipment and personnel will be provided by the testing laboratory. Deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.

Testing Laboratory Services:

1. All public Improvement Construction within the public right-of-way and onsite site improvements shall be conducted in accordance with, and conform to, the latest edition of the uniform standard specifications for Public Works Construction and Uniform Standard Details for Public Works Construction, Both as published by the Maricopa Association of Governments (M.A.G.).
2. Inspection of work per M.A.G. 105.10: The Engineer shall be permitted to inspect all materials, and each part or detail of the work at any time for the purpose of expediting and facilitating the progress of work. He shall be furnished with such information and assistance by the contractor, as is required to make a complete and detailed inspection. The City Engineer requires that the actual test result data sheet accompany all compaction test results submitted to the city's inspector. Pass/Fail statements are not acceptable without the attached data sheet. Failure to submit the test result data sheets will result in an incomplete submittal and the test will be rejected.
3. Testing laboratory shall report the results of all tests, in writing simultaneously to the following:

Engineer	2 copies
Contractor	2 copies
Owner Representative	2 copies

4. The office of the City Engineer shall be notified at least forty-eight (48) hours prior to the commencement of any work within the city right-of-way.
5. Contractor is to notify all public utilities at least two (2) working days prior to construction, for field locations of their respective facilities, by contacting the following: BLUE STAKE NUMBER: 1-800-782-5348.
6. Contractor shall give notice to the Owner's Representative and the City of Buckeye Engineer not less than three (2) working days in advance of when he/she will perform construction testing services in connection with any portion of the work. Notification(s) in written format to the appropriate agency(s) shall be the Contractor's responsibility. The Owner's Representative will be copied on all notifications. If inspections are not performed, the Work will be subject to being uncovered and inspected and replaced by the Contractor accordingly. All Work associated with this process will be the financial responsibility of the Contractor.
7. Compaction testing is required and must be performed in the presence of a representative of the City Engineer.

BACKFILL: Backfill within the drainage easement compact to 95% of maximum theoretical density per ASTM D698. All materials outside the moisture limit shall be considered unsuitable, and subject to removal. No hydraulic compaction or water jet compaction will be allowed. All compaction must be done by mechanical means. Moisture limit spec: 2.0 percent below optimum moisture, material shall be uniform.

SUB-GRADE: Sub-grade preparation for the drainage easement shall consist of scarifying and loosening sub-grade to a depth of six (6") inches. Sub-grade shall be constructed to achieve uniform moisture content by the addition of water and compacted to 95% of maximum density. Moisture shall be maintained between optimum and 4.0% below optimum moisture and shall be compacted to 95% on maximum theoretical density, as determined by ASTM D698. All materials outside the moisture limit at the time of placement and compaction shall be considered unsuitable and subject to removal. The finished surface of the sub-grade shall not vary from the grades established by the City Engineer by more than: 0.04 of a foot above or below specified grade.

8. Compaction testing for sub-grade will be done after the sub-grade has been string lined and is within tolerance and accepted by the City Engineer. The City Engineer or his representative will direct the number and location of density tests. All sub-grades shall have a blue-top elevation set to the top and bottom of channel banks.

9. One (1) sand cone test shall be required for every twenty-five (25) nuclear density tests performed, or when requested by the City Engineer or his representative. The City Engineer or Engineer's representative shall determine the locations of these sand cone tests.
10. All materials, including but not limited to aggregate base course, borrow material and native material, will be accepted in place only. Testing required for acceptance will include a sieve analysis and plasticity index, (P.I.). Determination of maximum theoretical density will be in accordance with ASTM D698. Only a four-point proctor test will be accepted.
11. Gradation reports for the rock riprap shall be provided to the City Engineer or his representative for each one-thousand (1,000) cubic yards of rock riprap delivered.

112.3 Payment:

The sampling and testing under this section will be paid under, CONTRACTOR QUALITY CONTROL, bid item 112.01000.

PART 200 – EARTHWORK

220.1 RIPRAP CONSTRUCTION

Riprap shall be constructed as per the requirements of MAG Section 220 and as shown in the plans. Riprap shall conform to the requirements of Section 703.

220.4 PLACEMENT OF EROSION CONTROL GEOSYNTHETIC FABRIC: *The following shall be added:*

Bedding material shall consist of granular material having a maximum dimension of two inches and shall be free of clay or organic material.

220.8 PAYMENT: *is revised to read:*

Payment for furnishing and placing riprap shall be on the basis of the price bid per cubic yard for rock of the size indicated and to the thickness and dimensions shown on the plans and details, and shall include full compensation for furnishing all labor, materials, tools, and equipment, and doing all the work involved in furnishing and placing the riprap complete in place as shown on the plans and specified herein. This includes, but is not limited to, hauling and stockpiling; sorting or screening; excavation, watering, grading and compaction of ground surfaces; placing the stone on the prepared surfaces; leveling, trimming, and final grading of the finished surface; installing erosion control geosynthetic fabric, bedding material, riprap stone and backfilling.

PART 700 – MATERIALS

703.1 General: *is revised to read:*

Aggregate for riprap construction shall meet the requirements of MAG Section 701.2 and 703.2.

Aggregate shall be "Sundance Blend", "Belmont Gold" or a color that matches the aggregate color used in the upstream part of the channel, west of Dean Road. The aggregate color shall be approved by the City Engineer or representative.

The contractor shall provide the City Engineer or representative, in writing, material information and the source location at least 10 days prior to use of the material.

703.2 Physical Properties: *is revised to read:*

Riprap shall have the following physical properties:

- (A) The maximum aggregate size shall be 150% of the indicated D_{50} size and the minimum aggregate size shall be 50% of the indicated D_{50} size.
- (B) Aggregate shall be angular and shall not exceed 3:1 ratio for flat and/or elongated pieces when determined by ASTM D4791. No rounded aggregate shall be allowed.
- (C) The loss by abrasion in the Los Angeles Abrasion Machine, determined as prescribed in ASTM C535, shall not exceed 40% (by weight) after 1000 revolutions.